



NephU[™]

Improving Awareness & Patient Outcomes

The Impact of Kidney Disease & Disparities in Underserved Populations

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Improving Awareness & Patient Outcomes

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Objectives

- Highlight the importance of the kidneys and preserving kidney function.
- Review the impact of kidney disease in the United States of America.
- Discuss the disparities that exist in underserved and underrepresented communities.
- Highlight the social determinants of health causing disparities within certain communities.
- Discuss ways to overcome these barriers and steps towards equitable kidney care.

Test Your Knowledge



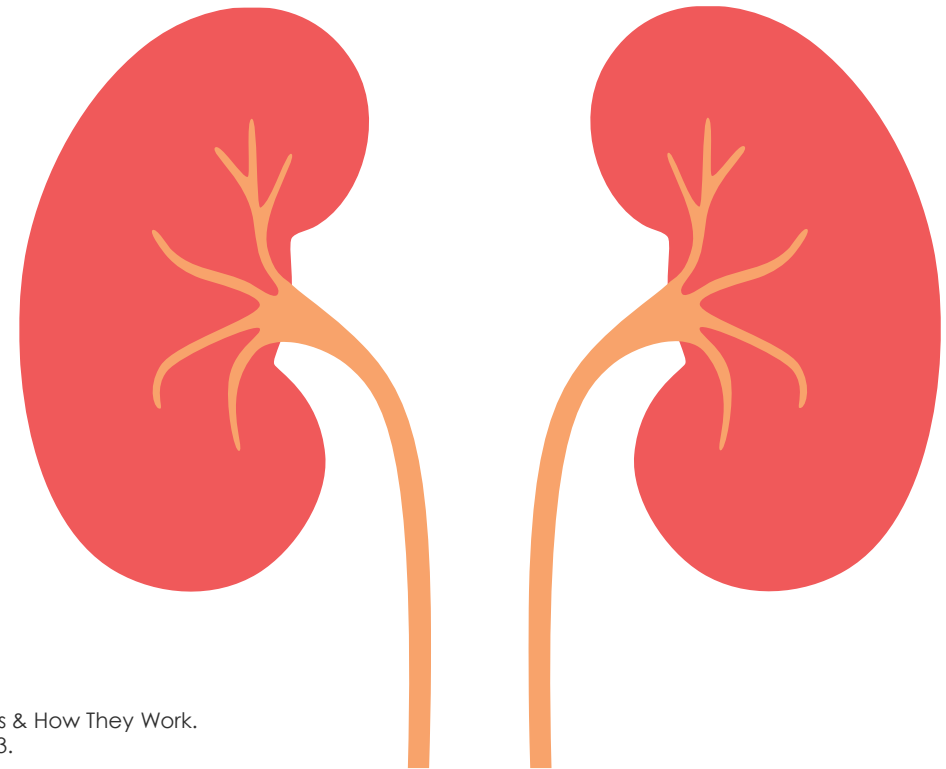
What do your kidneys do?

- A. Break down the food you eat
- B. Pass oxygen throughout your body
- C. Clean your blood
- D. Help your sleep patterns

1. National Institute of Diabetes and Digestive and Kidney Disease. Health Information, Kidney Disease, Your Kidneys & How They Work. <https://www.niddk.nih.gov/health-information/kidney-disease/kidneys-how-they-work>. Accessed on April 7th 2023.

How Do Your Kidneys Work?

- Inside each kidney are millions of small units that clean your blood
- Your kidneys give needed food to your blood and take away waste you do not need



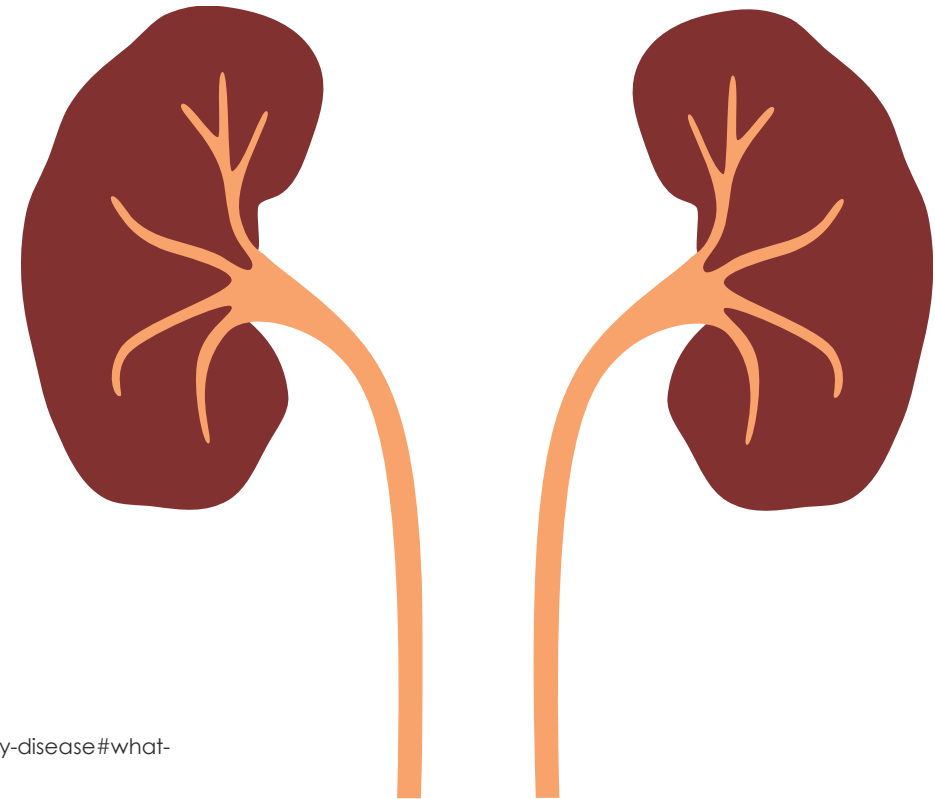
1. National Institute of Diabetes and Digestive and Kidney Disease. Health Information, Kidney Disease, Your Kidneys & How They Work. <https://www.niddk.nih.gov/health-information/kidney-disease/kidneys-how-they-work>. Accessed on April 7th 2023.

What is Chronic Kidney Disease (CKD)

When kidneys don't work as well as they should over a long period of time, this is called chronic kidney disease (CKD)

In CKD, toxic waste and extra fluid accumulate in the body and may lead to high blood pressure, heart disease, stroke, and early death.

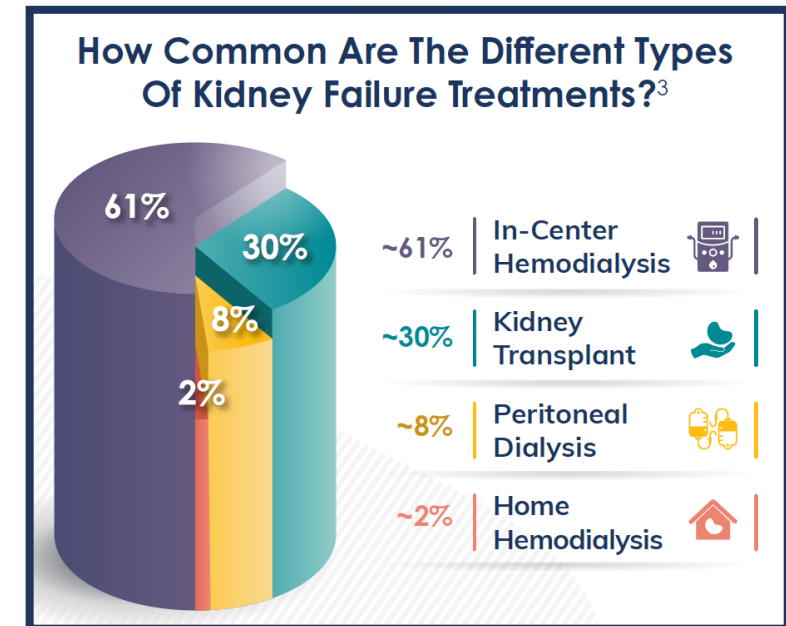
However, people with CKD and people at risk for CKD can take steps to protect their kidneys with the help of their healthcare providers.



1. National Kidney Foundation. Chronic Kidney Disease. <https://www.kidney.org/atoz/content/about-chronic-kidney-disease#what-chronic-kidney-disease>. Accessed on April 7th 2023.

The Impact of Kidney Disease in the United States?

- More than **1 in 7** U.S. adults, that is **37 million** people in the United States are estimated to have CKD¹
- As many as **9 in 10** U.S. adults with CKD do not know they have CKD¹
- CKD is a chronic condition that, for most patients, will progress to kidney failure where there are limited options.²
 - Life expectancy for a patient on dialysis is 5-10 years (although some patients live much longer)³
 - A kidney transplant offers better outcomes including quality of life, however the average wait time is 3-5 years (can be longer in various geographical regions)⁴
- High degree of **emotional burden** associated with CKD diagnosis (for example: increased rates of depression)⁵



1. "Kidney Month Infographic." NephU. February 2021 2. "Kidney Failure Treatment Modalities Infographic." NephU. December 2022. 3. National Kidney Foundation. www.kidney.org/atoz/content/dialysisinfo#:~:text=Life%20expectancy%20on%20dialysis%20can,20%20or%20even%2030%20years. 4. National Kidney Foundation. www.kidney.org/atoz/content/transplant-waitlist 5. Simões E Silva, Ana Cristina et al. "Neuropsychiatric Disorders in Chronic Kidney Disease." Frontiers in pharmacology vol. 10 932. 16 Aug. 2019, doi:10.3389/fphar.2019.00932.

The Impact of Chronic Kidney Disease

Healthcare Utilization								
Stage	1	2	3a	3b	4	5	Dialysis	Post-transplant
GFR (mL/min/1.73 ²) ¹	≥90	60-89	45-59	30-44	15-29	<15	-	-
Patients requiring hospitalization ^{2‡}	16.1%	12.1%	17.4%		23.1%	42.8%	46.8%	41.0%
Patients requiring hospital outpatient visits ^{2‡}	69.0%	70.3%	77.7%		82.5%	92.5%	94.9%	93.5%
Employment & Work Productivity								
Stage	1	2	3a	3b	4	5	Dialysis	Post-transplant
Work time missed due to health ^{3§}	4.2%				8.3%		25.9%	4.6%
Activity impairment ^{3,4§}	8.7%				22.8%		41.8%	16.4%
Unemployment ⁴	28.6%				46.8%		64.4%	

‡ In a 6-month period; based on a retrospective, longitudinal cohort study based on health insurance claims data from July 2005 to June 2010. Included data from 4,234 patients with ADPKD. § Based on data from a Nordic study of 243 patients and a US survey-based study of 300 patients.

1 KDIGO 2012. Kidney International Supplements 2013; Volume 3: Issue 1. 2 Knight T et al. ClinicoEconomics and Outcomes Research. 2015; 7:123-32. 3 Eriksson et al. BMC Health Serv Res. 2017; 17:560-7. 4 Cloutier M, Manceur AM, Guerin A, Aigbogun MS, Oberdhan D, Gauthier-Loiselle M. The societal economic burden of autosomal dominant polycystic kidney disease in the United States. BMC Health Serv Res. 2020 Feb 18;20(1):126. doi: 10.1186/s12913-020-4974-4.

Racial and Ethnic Composition of the United States

The 2020 Census illuminates the changing racial and ethnic composition of the country¹

	Total population	White, not Hispanic or Latino	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Multiracial Population	Hispanic or Latino
2010	308,745,538	72.4	12.6	.9	4.8	.2	2.9	16.3
2020	331,893,745	61.6	12.4	1.1	6	.2	10.2	18.7

- Persons identifying as White alone decreased since 2010 while most other groups increased
- The percentage of people who reported multiple races changed more than all of the race alone groups, increasing from 2.9% of the population (9 million people) in 2010 to 10.2% of the population (33.8 million people) in 2020¹

¹ United States Census Bureau, www.census.gov/library/stories/2021/08/improved-race-ethnicity-measures-reveal-united-states-population-much-more-multiracial.html

Disparities that Exist in Underserved Communities

Black and Hispanic/Latino adults have a higher risk of having CKD than White adults

16%

BLACK ADULTS

14%

HISPANIC/LATINO ADULTS

13%

WHITE ADULTS

Although Black Americans make up **13.4%** of the US population, they account for **30%** of patients with kidney failure.

3.5x

Black Americans have 3.5x higher risk of progressing from early stages of CKD to kidney failure.

1.3x

Hispanic/Latino populations are 1.3X more likely to be diagnosed with kidney failure than non-Hispanic Americans

1.2x

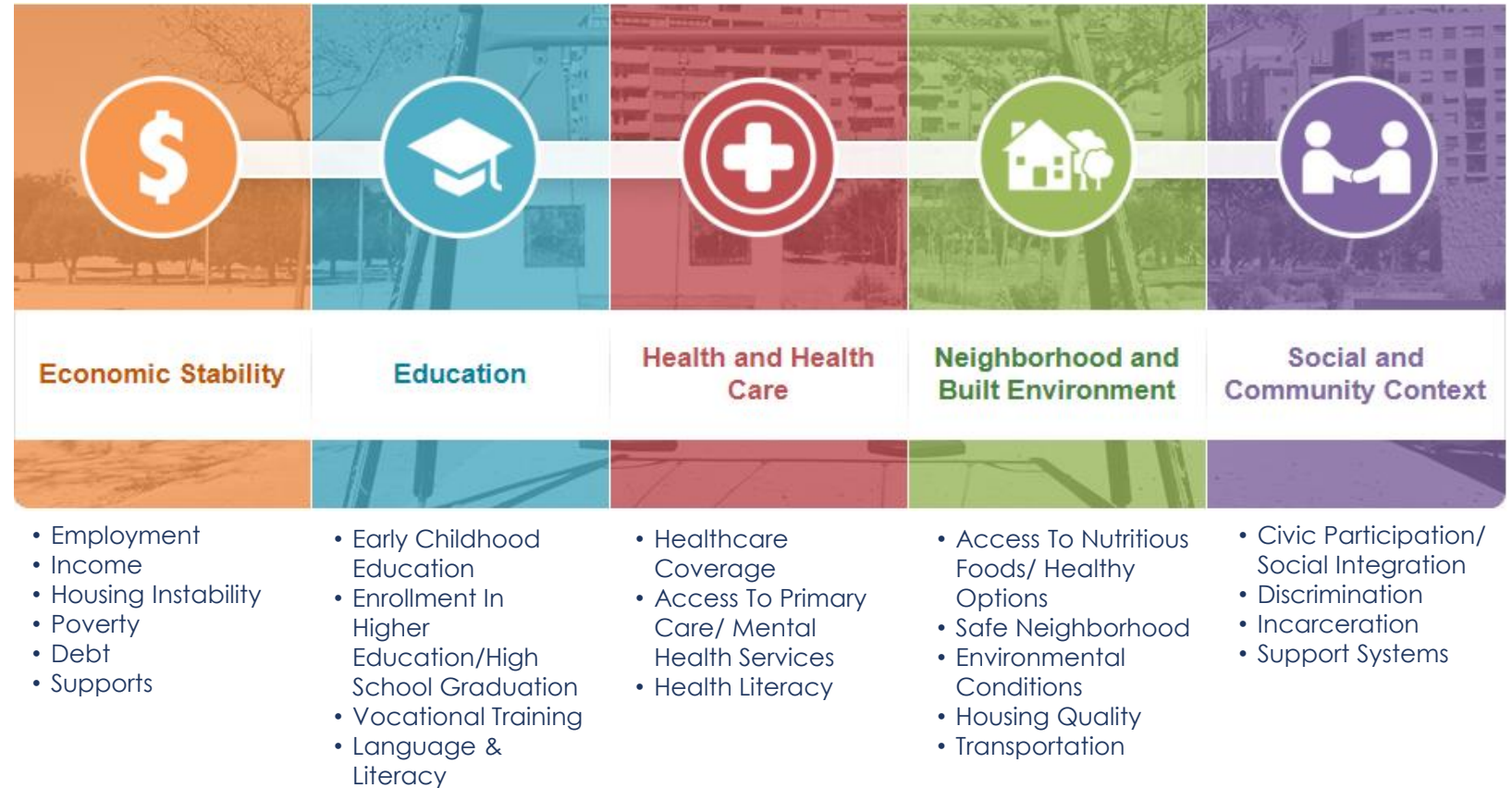
Native American Indians are 1.2 more likely to be diagnosed with kidney failure than white Americans

CKD = Chronic Kidney Disease

1. Norton JM, Moxey-Mims MM, Eggers PW, Narva AS, Star RA, Kimmel PL, Rodgers GP. Social Determinants of Racial Disparities in CKD. JASN September 2016, 27 (9) 2576-2595: <https://doi.org/10.1681/ASN.2016010027>.
2. National Kidney Foundation, www.kidney.org/atoz/content/minorities-KD

Social Determinants of Health: Domains & Examples^{1,2}

Social Determinants of Health (SDoH) are conditions in the environment in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks³



1. Office of Disease Prevention & Health Promotion (ODPHP). (n.d.). Healthy people 2020: Social determinants of health: Explore resources related to the social determinants of health. Rockville, MD: U.S. Department Of Health & Human Services ODPHP. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources>. 2. Artiga, S., & Hinton, E. (2018). Beyond healthcare: The role of social determinants in promoting health and health equality. Washington, DC: The Henry J. Kaiser Family Foundation (KFF). Retrieved from <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>. 3. Healthy People 2020: <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>

Social Determinants of Health and Chronic Kidney Disease (CKD)



Economic Stability¹

- Studies have shown that individuals with income above the federal poverty level have lower odds of prevalent CKD

Education

- Studies have shown having at least 1 undergraduate degree was associated with lower odds of prevalent CKD¹

Health and Healthcare²

- Using race in eGFR equations can create:
 - delays in referral to nephrology
 - delays in transplantation evaluation
 - delays in referral for kidney failure care
 - improper dosing of medications
 - lack of transparency for patients for shared decision-making

Neighborhood and Built Environment

- People with CKD experiencing homelessness are 30% more likely to develop kidney failure or die than people with CKD that are stably housed⁴
- CKD patients experiencing housing insecurity are 60% more likely to postpone needed medical care⁴

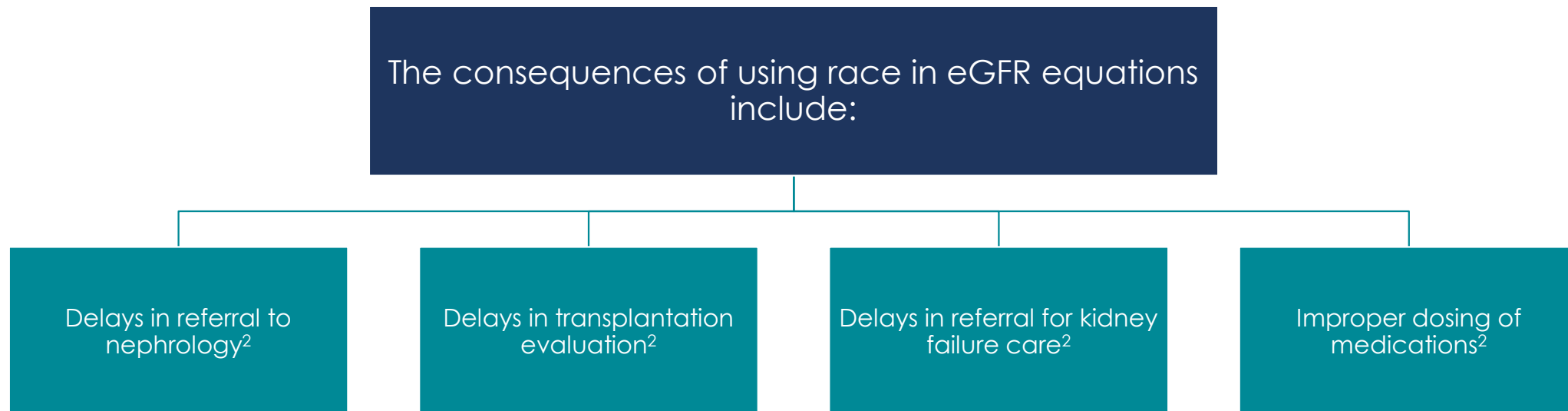
Social and Community Context³

- Kidney disease is common in incarcerated populations
- Prisoners may face a triple burden of kidney health due to excess risk of kidney disease and its risk factors, barriers to preventive care for established chronic kidney disease and suboptimal management of end-stage kidney disease

1. Nicholas S.B. et al. "Socioeconomic disparities in chronic kidney disease." *Advances in chronic kidney disease* vol. 22,1 (2015): 6-15. doi:10.1053/j.ackd.2014.07.002. 2. Novick T. et al. Diversity, Equity, and Inclusion in Nephrology. October 2020, American Society of Nephrology Virtual Kidney Week. 3. Luyckx V. et al. "The Global Burden of Kidney Disease and the Sustainable Development Goals." World Health Organization, World Health Organization, 31 May 2018, www.who.int/bulletin/volumes/96/6/17-206441/en/. 4. Novick, T and Baweja B. Housing: A Critical Contributor to Kidney Disease Disparities. *Journal of the American Society of Nephrology*, June 2022. <https://doi.org/10.1681/ASN.2022040424>

Racial Differences in eGFR Equations

- When the eGFR with race coefficient equation was created, the study lacked racial diversity and made the assumption “on average black persons have greater muscle mass than white persons.”¹
- The MDRD and CKD-EPI equations use a black race coefficient which increases a black person's eGFR.¹
- A collaborative study in CKD patients aimed to evaluate the impact of an “eGFR race correction” on Black patients (n=2,225). Approximately 1/3 of the patients would be re-classified into a more severe CKD stage if the race coefficient were removed. Approximately 3% of patients (n=64) were re-classified to an eGFR <20 ml/min.²



¹ Eneanya ND, Yang W, Reese PP. Reconsidering the consequences of using race to estimate kidney function. *JAMA*. 2019;322(2):113. ² Ahmed S, Nutt CT, Eneanya ND, Reese PP, Sivashanker K, Morse M, Sequist T, Mendu ML. Examining the Potential Impact of Race Multiplier Utilization in Estimated Glomerular Filtration Rate Calculation on African-American Care Outcomes. *J Gen Intern Med*. 2021 Feb;36(2):464-471. doi: 10.1007/s11606-020-06280-5.

Recommendations from the National Kidney Fund and American Society of Nephrology Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease

- Adoption of new eGFR 2021 CKD EPI creatinine equation that estimates kidney function without a race variable in all laboratories in the United States
- Increased, routine, and timely use of cystatin C combined with serum (blood) creatinine, as a confirmatory assessment of GFR or kidney function
- Fund research on GFR estimation with new endogenous filtration markers and on interventions to eliminate race and ethnic disparities

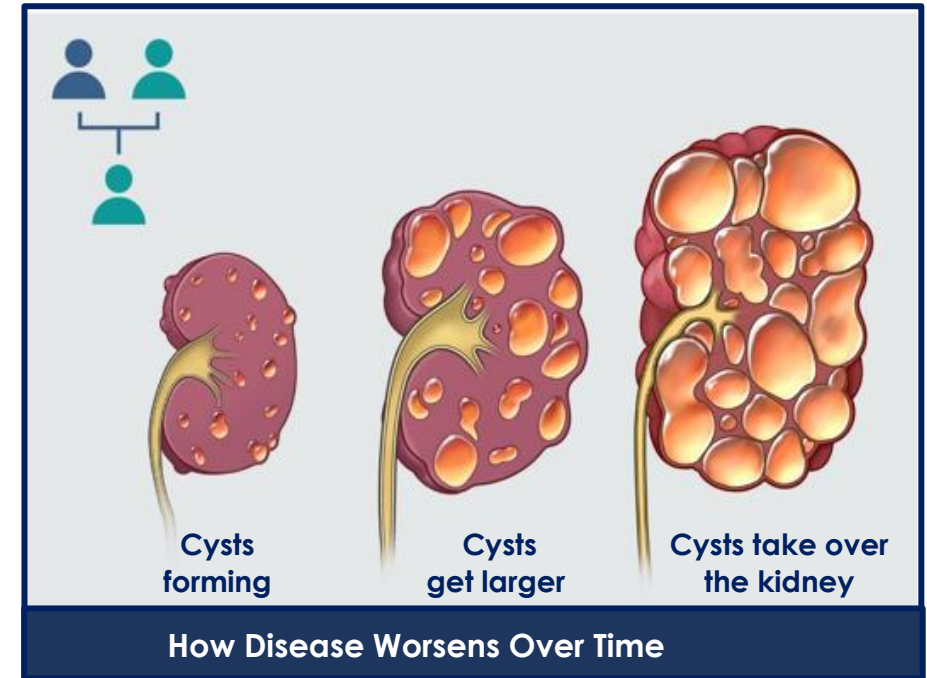
This unified approach, without specification of race, should be adopted across the United States. High-priority and multistakeholder efforts should implement this solution



Delgado C, Baweja M, Crews DC, Eneanya ND, Gadegbeku CA, Inker LA, Mendu ML, Miller WG, Moxey-Mims MM, Roberts GV, St. Peter WL, Warfield C, Powe NR. A Unifying Approach for GFR Estimation: Recommendations of the NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease. *JASN* Dec. 2021; 32(12):2994-3015; doi 10.1159/ASN.2021070988

Polycystic Kidney Disease (PKD): An Overview

- Polycystic Kidney Disease or PKD is a genetic disease (can be passed down through generations in families).
- In PKD, certain kidney cells are damaged which leads to the development of multiple fluid filled sacs called cysts.
- These cysts expand over time and cause the kidneys to become large.
- Ultimately, when there are too many cysts the kidneys stop working properly. This can lead to kidney failure in people with PKD.



Did you know?



A healthy kidney is about the size of a fist



A polycystic kidney can grow as large as a football



1. Grantham JJ et al. (2011). *Nat Rev Nephrol.* 7(10):556-566.

Who gets Polycystic Kidney Disease?

There are two types of Polycystic Kidney Disease¹

1. Autosomal Dominant Polycystic Kidney Disease (ADPKD)
2. Autosomal Recessive Polycystic Kidney Disease (ARPKD)

For most people, ADPKD is inherited, or passed down, from one parent²

- If either the mother or father have ADPKD, a child has a 50% chance of getting the disease
- There are some people who get ADPKD without a clear family history; this happens to about 1 in 20 people



1. Bergmann C (2018). *Frontiers in Pediatrics*. 5:221. 2. Hateboer N et al. (1999). *Lancet*. 353(9147):103-107.

ADPKD Is the Most Common Life-threatening Inherited Renal Disease

ADPKD does not discriminate on gender, race, ethnicity, or geography¹

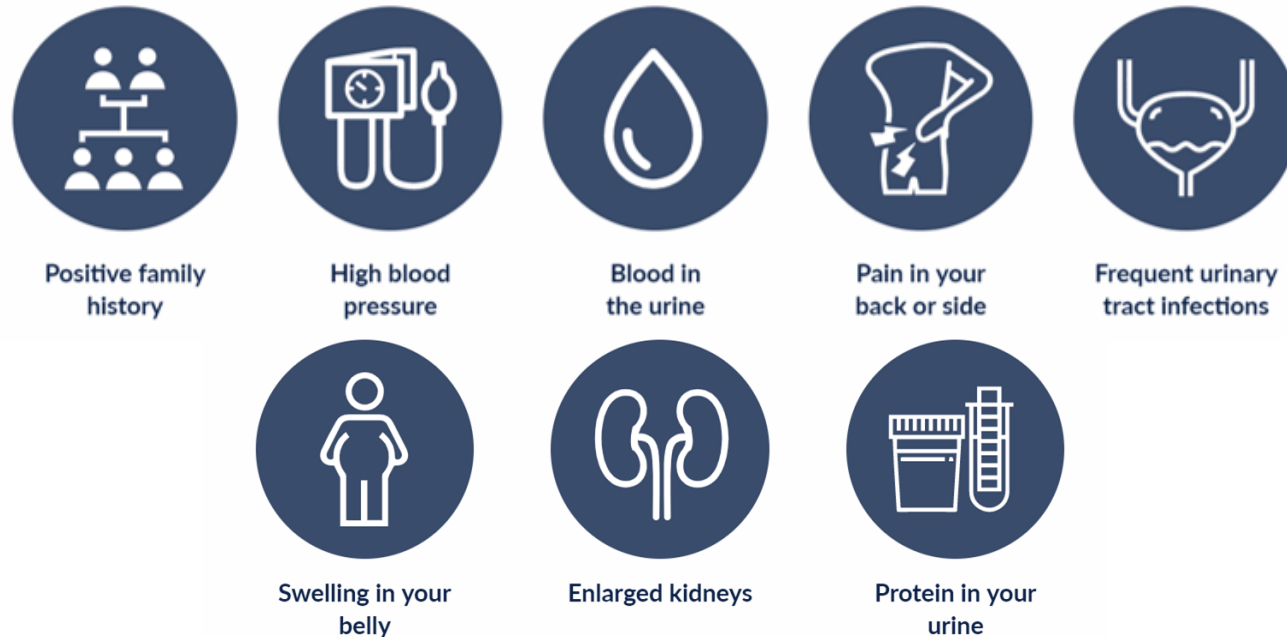
- ADPKD affects both sexes equally, and occurs in all ethnicities²
- ADPKD is the most common life-threatening inherited renal disease and accounts for up to ~5% of all patients with kidney failure²
- ADPKD is the fourth leading cause of kidney failure in the United States after diabetes, hypertension, and glomerulonephritis³
- Between 1:400 and 1:1000 people living today will be diagnosed with ADPKD in their lifetime¹
- ADPKD affects over 13 million people worldwide⁴

ADPKD=autosomal dominant polycystic kidney disease; ESRD=end-stage renal disease.

1. Torres VE, Harris PC. (2009). *Kidney Int.* 76(2):149-168. 2. Chebib FT, Torres VE. (2016). *Am J Kidney Dis.* 67(5):792-810. 3. United States Renal Data System. 2016 USRDS Annual Data Report Volume 2: ESRD in the United States. National Institutes of Diabetes and Digestive and Kidney Diseases. Bethesda, MD, 2016. 4. Sweeney WE Jr and Avner ED. (2014). *Pediatr Res.* 75(1-2):148-157

Common Signs & Symptoms of ADPKD

Symptoms of ADPKD can happen slowly. Some people don't see the symptoms until they are adults (usually between 30 and 50 years old).

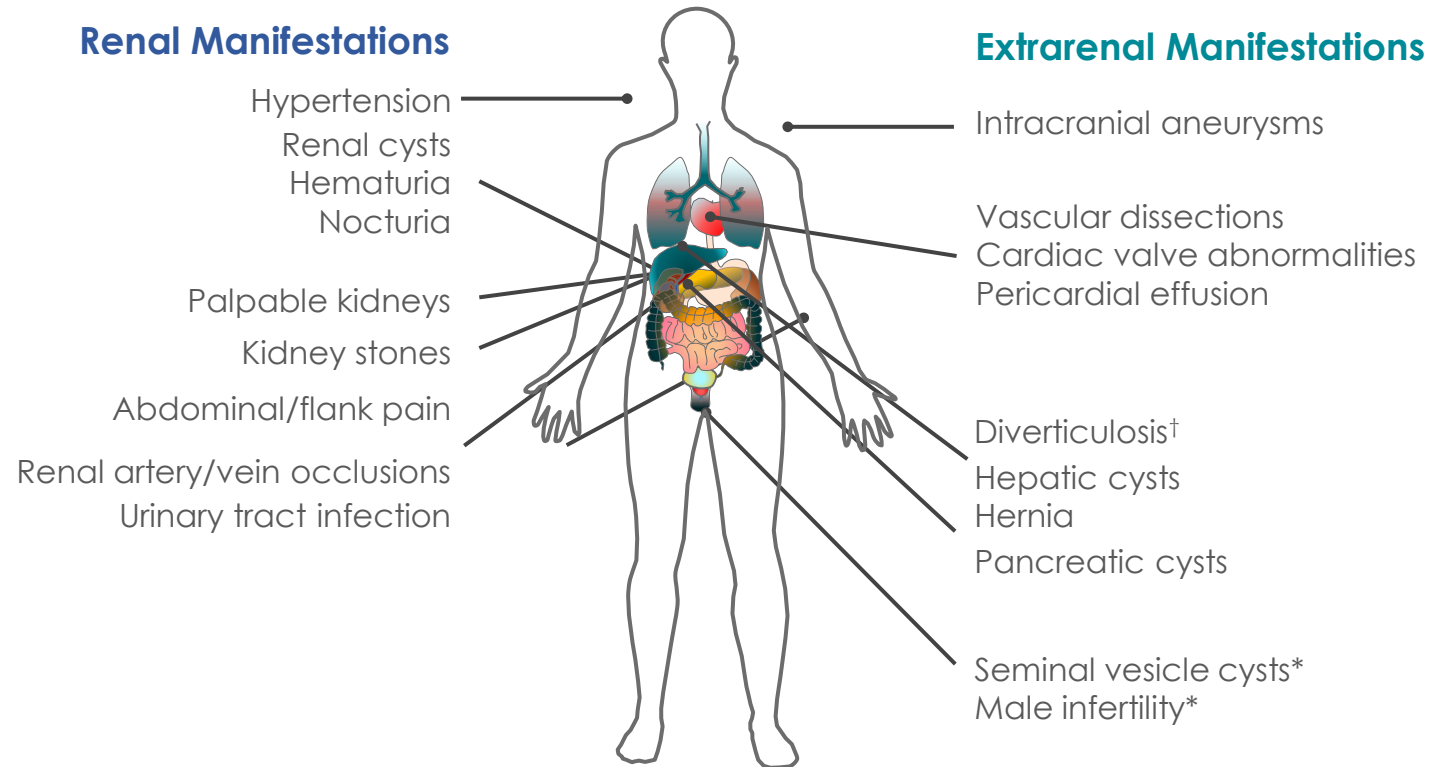


ADPKD = Autosomal Dominant Polycystic Kidney Disease

1. ADPKD Questions: About ADPKD. Diagnosis. What are the signs and symptoms of ADPKD? <https://www.adpkdquestions.com/adpkd-diagnosis>. Accessed on Dec. 10th 2021.

ADPKD is a Systemic Disease

Renal cysts are the first manifestation of ADPKD and precede changes in kidney function by many years¹⁻⁷



*In male patients. †Most common in patients with end-stage renal disease.

ADPKD=autosomal dominant polycystic kidney disease.

1. Halvorson CR et al. (2010). *Int J Nephrol Renovasc Dis.* 3:69-83. 2. Torres VE, and Harris PC. (2009). *Kidney Int.* 76(2):149-168. 3. Chebib FT and Torres VE. (2016). *Am J Kidney Dis.* 67(5):792-810. 4. <https://patient.info/doctor/autosomal-dominant-polycystic-kidney-disease> 5. Luciano RL and Dahl NK. (2014). *Nephrol Dial Transplant.* 29(2):247-254. 6. Mokolajczyk AE, et al. (2017). *Clin Gastroenterol Hepatol.* 15(1):17-24. 7. Chauveau D et al. (1994) *Kidney Int.* 45:1140-1146.

Emotional Burden of ADPKD

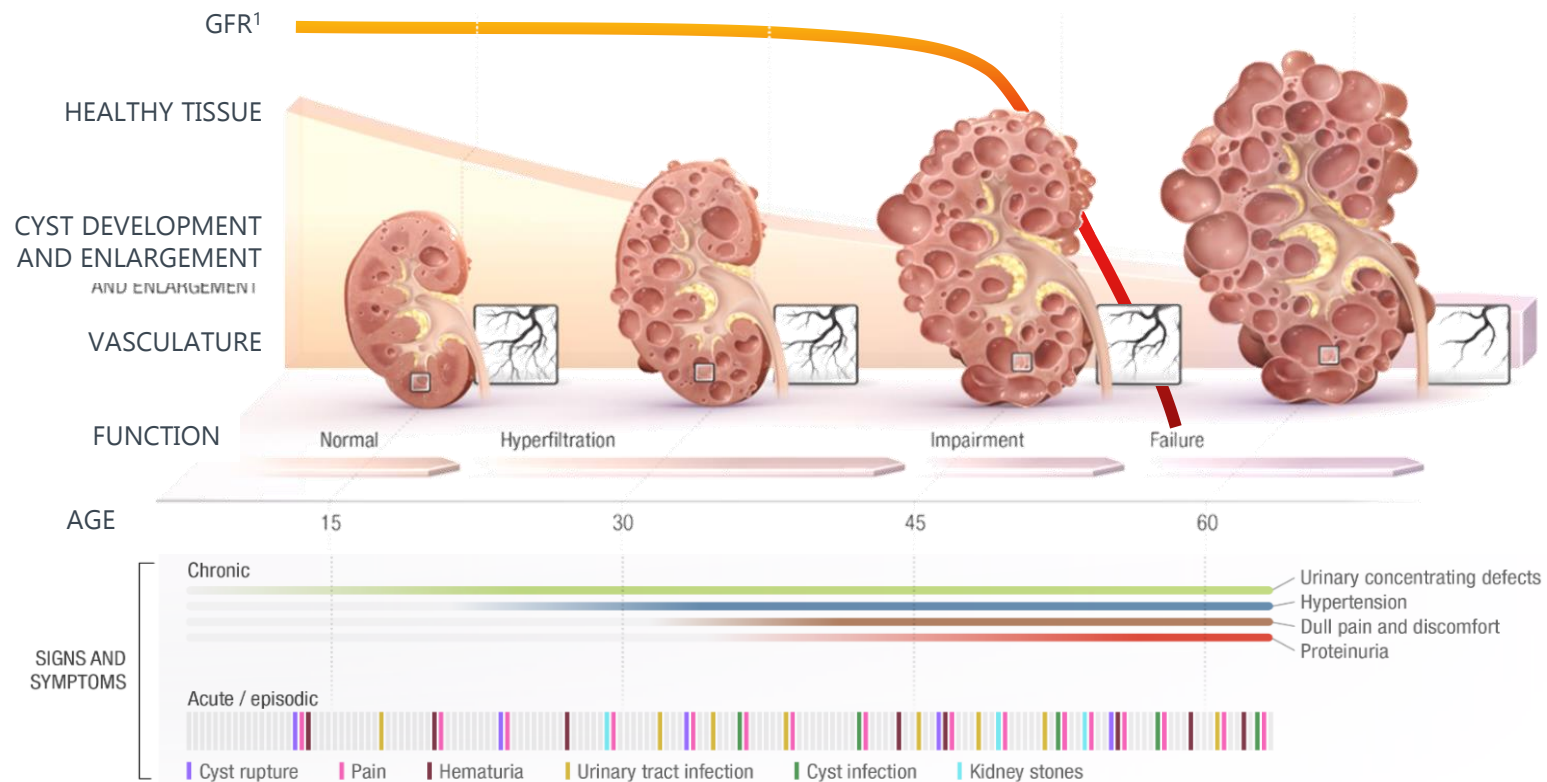


ADPKD=autosomal dominant polycystic kidney disease.

1. Baker A et al. (2015). *Clin Kidney J.* 8(5):531-537. 2. Pérez-Dominguez T et al. (2012). *Nefrologia.* 32(3):397-399.

Cyst Burden and Patient Complications in ADPKD: An Overview

Kidney Disease Progression in ADPKD



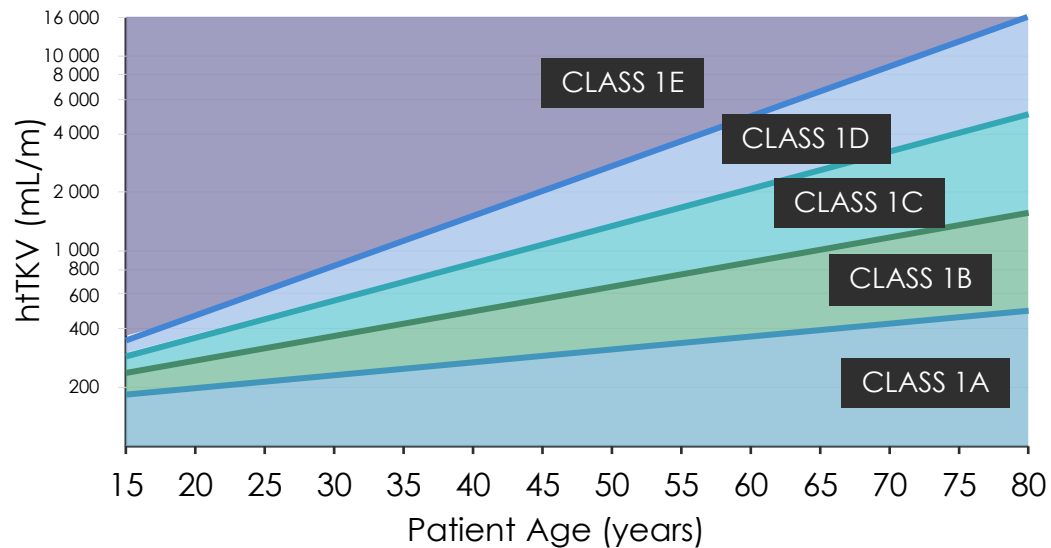
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ADPKD=autosomal dominant polycystic kidney disease; GFR, glomerular filtration rate.

1. Grantham JJ et al. (2011). *Nat Rev Nephrol.* 7(10):556-566.

TKV-Based Classification

Age and htTKV predicts decline in eGFR over time in patients with a typical* presentation of ADPKD



Class	Estimated kidney growth rate: yearly percentage increase	Risk for eGFR decline
1E	>6.0%	High risk
1D	4.5 – 6.0%	High risk
1C	3.0 – 4.5%	High risk
1B	1.5 - 3.0%	Intermediate risk
1A	<1.5%	Low risk

*Typical presentation refers to patients with a bilateral and diffuse cyst distribution in both kidneys with mild to severe replacement of kidney tissue by cysts, with all cysts contributing similarly to TKV. ADPKD=autosomal dominant polycystic kidney disease; eGFR=estimated glomerular filtration rate; htTKV=height-adjusted TKV; TKV=total kidney volume. Irazabal MV et al. (2015). *J Am Soc Nephrol.* 26:160-172.

Management of Hypertension

- Hypertension is strongly associated with cardiovascular morbidity and mortality and risk for kidney failure in ADPKD
- In the HALT-PKD study, intensive treatment for hypertension demonstrated beneficial effects on ADPKD disease progression

Recommendation:

18- to 50-year-old patients with
eGFR >60 mL/min per 1.73 m¹*

Target BP ≤110/75 mm Hg

*Particularly patients with severe kidney disease
(class C-E) or cardiovascular associations

Other patients

Target BP ≤130/85 mm Hg

Methods:

ACEI/ARB

Diuretic
use with caution

α/β or cardio
selective β
blocker

Calcium
channel
blockers
use with caution

Dietary
approaches

ACEI=angiotensin-converting enzyme inhibitors; ADPKD=autosomal dominant polycystic kidney disease; ARB=aldosterone receptor blocker; BP=blood pressure; eGFR=estimated glomerular filtration rate; ESRD=end-stage renal disease; HALT-PKD=Halt Progression of Polycystic Kidney Disease.

1 Chebib T Torres VE. Recent Advances in the Management of Autosomal Dominant Polycystic Kidney Disease. CJASN November 2018, 13(11)1765-1776. DOI: <https://doi.org/10.2215/CJN.03960318>

Dietary Management of ADPKD

Dietary Approaches to Stop Hypertension (DASH) diet¹

Moderate sodium restriction¹

2.3-3 g daily

Moderately enhanced hydration, spread out over 24 hours¹

Maintain urine osmolality ≤ 280 mOsm/kg

Lower protein diet¹

0.8-1.0 g/kg ideal body weight

Diet low in phosphorus¹

Avoid processed foods

Increase fruits and vegetables¹

2-4 cups/d

Bicarbonate supplementation¹

Maintain plasma bicarbonate level ≥ 22 mmol/L

Moderate caloric intake to maintain a normal BMI¹

ADPKD= autosomal dominant polycystic kidney disease; BMI=body mass index.

¹ Chebib T Torres VE. Recent Advances in the Management of Autosomal Dominant Polycystic Kidney Disease. CJASN November 2018, 13(11)1765-1776. DOI: <https://doi.org/10.2215/CJN.03960318>

Management of Lipid Levels

- Dyslipidemia likely increases the cardiovascular morbidity of ADPKD

Recommendation:

Target serum LDL \leq 100 mg/dL

Methods:

Dietary changes

Regular exercise

Statin*
If needed

*Alternatives, such as a cholesterol absorption blocker should be considered if the patient is unable to tolerate statins.

ADPKD=autosomal dominant polycystic kidney disease; LDL= low density lipoprotein.

Chebib T Torres VE. Recent Advances in the Management of Autosomal Dominant Polycystic Kidney Disease. CJASN November 2018, 13(11)1765-1776. DOI: <https://doi.org/10.2215/CJN.03960318>

Disparities in the ADPKD Population

The Black American and Hispanic/Latino American ADPKD experience when compared to White Americans with ADPKD

Reach Kidney Failure

Black Americans
2–3 years earlier

Hispanic/Latino Americans
4-5 years earlier

Pre-emptive transplant

Black Americans
69% less likely

Hispanic/Latino Americans
58% less likely

Average time on the transplant waitlist

Black Americans
13 months longer

Hispanic/Latino Americans
9 months longer

Both Black & Hispanic ADPKD Patients Are Less Likely To Receive Specialty Kidney Care for their Diagnosis

1. McGill RL, Saunders MR, Hayward AL, Chapman AB. Health Disparities in Autosomal Dominant Polycystic Kidney Disease (ADPKD) in the United States. Clin J Am Soc Nephrol. 2022 Jun 20:CJN.00840122. doi: 10.2215/CJN.00840122

Ways to overcome barriers and steps towards equitable kidney care

- Recognize the disparities that exist and identify the barriers that are influencing suboptimal kidney care
- Empower the kidney community to talk with their family about their kidney disease and seek the care they deserve
- Expand Medicare coverage to begin earlier when a patient is eligible for kidney transplant evaluation
- Improve living kidney donation education for patients and their families to improve quality-of-life and overall outcomes

www.KidneyQuestions.com

<https://www.otsukapatiented.com>

IMPORTANCE OF KIDNEY SIZE
“What are some questions to ask my nephrologist about my kidney size?”

We know that learning more about your ADPKD diagnosis can be challenging at times, but you are not alone. Ask your nephrologist to take a close look at the size of your kidneys and number of cysts. It is crucial to monitor your kidney size because it is a predictor of disease progression for ADPKD and may grow larger over time.

To gain a better understanding and to start a conversation, ask your nephrologist the following questions at your next visit:

- Doctor, can you assess my kidney size?
- What tests are used to measure the size of my kidneys?
- How long will it take to assess my kidney size?
- When can I expect my results?

Be proactive in partnering with your nephrologist.
 The questions you ask your nephrologist can change the future of your ADPKD.

For more information, visit ADPKDquestions.com.

LIVING WITH ADPKD
“What are some tips to help manage kidney health?”

Follow these tips to help keep a healthy lifestyle for your kidneys:

Eat a heart healthy diet:

What to eat	What to avoid
Whole foods, such as: <ul style="list-style-type: none"> • Fruits • Vegetables • Nuts • Whole grains and high-fiber carbohydrates that are low in sodium 	<ul style="list-style-type: none"> • Sweets • Saturated protein with omega-3 fats, such as fish and eggs • Poultry • Food or drinks that contain lots of sodium, as this may cause your blood pressure to rise • Smoking may cause your blood pressure to rise, which can cause damage to your kidneys

Exercise regularly to improve blood pressure, sleep, heart health, bone mass, and more. Make sure to check with your physician prior to engaging in exercise.

Practice relaxation techniques, such as meditation and breathing, to help reduce stress.

Drink lots of water to help suppress vasopressin, an antidiuretic hormone that stimulates cyst growth.

Pay attention to your body to stay aware of your health so you can respond quickly and correctly to any issues.

Take medications as directed by your doctor and check with your healthcare provider before you make a change.

Keep all your appointments in order to schedule and manage checkups and routine testing. Regular appointments will help you and your healthcare team keep track of your condition.

Please consult your doctor about any lifestyle or diet modifications you may need to make. For more information, visit ADPKDquestions.com.

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Education Center
 Explore the latest kidney health information and educational resources developed in partnership with experts at NephU.

Featured Resource
Talking With Your Family and Friends
 Because ADPKD is genetic, meaning it runs in families, it...

Featured Stories
 Here you'll find stories about living or caring for someone with kidney disease.

- Guilt During the PKD Journey** (Length: 5:45)
 Valen and her family describe the guilt they felt while traversing Valen's lifelong PKD journey.
- Becoming the Inspiration I Needed** (Length: 3:35)
 Valen shares her experiences growing up with PKD and wishing she had examples of thriving adult PKD patients she could look up to.
- CKD: Emotional Roller Coaster** (Length: 4:50)
 CKD can strongly affect one's mental health. Steve chronicles his emotional highs and lows as he navigated his disease.

Ways to overcome barriers and steps towards equitable kidney care

Empower patients to take an active role in their kidney care

- Recognize Warning Signs of kidney disease

Risk factors to look for include:

- Heart disease
- High blood pressure
- Diabetes
- Being overweight
- Family history of kidney disease
- Older age
- Have low birth weight



Ways to overcome barriers and steps towards equitable kidney care

Empower patients to take an active role in their kidney care

Education, Becoming Part of Your Healthcare Team, Dietary and Lifestyle Modification Tools

Work with your kidney doctor (also called a nephrologist) or your primary care provider to learn more about disease management options

Limit salt intake

Build a strong support system of family and friends

Eat more fruits and vegetables

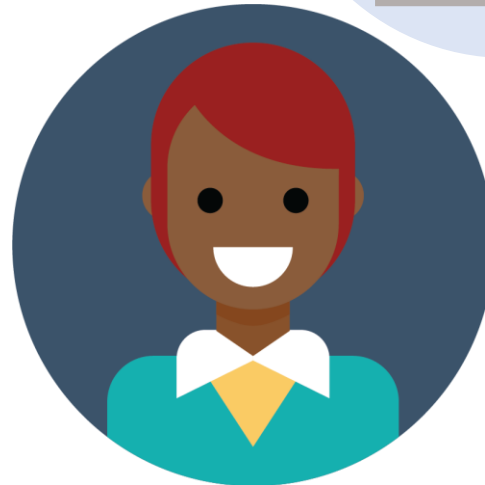


Write down how you are feeling and questions for the doctor to discuss at your next appointment

Keep a close watch on your blood pressure

Drink more water

Exercise





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Improving Awareness & Patient Outcomes

Appendix: Patient & HCP resources

Otsuka's Patient Education Network (OPEN)

<https://www.otsukapatiented.com/kidney-disease>

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Can Nutrition Interventions Modulate Inflammation Associated With Kidney Disease?

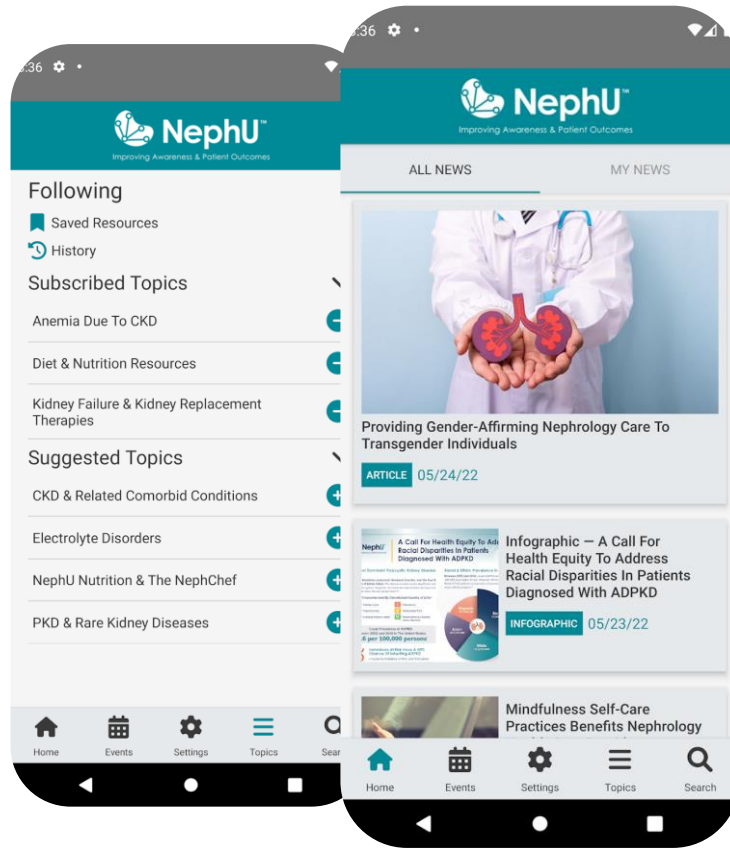
on March 9th, 2022

1 Contact Hour

Reza Maghadam, PharmD, MBA
Executive Director, Head of Field Medical Affairs, OPDC

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